



US006239806B1

(12) **United States Patent**  
Nishiumi et al.

(10) Patent No.: **US 6,239,806 B1**  
(45) Date of Patent: **\*May 29, 2001**

(54) **USER CONTROLLED GRAPHICS OBJECT  
MOVEMENT BASED ON AMOUNT OF  
JOYSTICK ANGULAR ROTATION AND  
POINT OF VIEW ANGLE**

D. 317,946 7/1991 Tse ..... D14/117.7  
D. 357,712 4/1995 Wu ..... D14/117.7  
D. 363,092 10/1995 Hung ..... D14/117.5

(List continued on next page.)

(75) Inventors: **Satoshi Nishiumi; Kazuo Koshima;  
Shigeru Miyamoto; Yasunari Nishida,**  
all of Kyoto (JP)

#### FOREIGN PATENT DOCUMENTS

32 04 428 8/1983 (DE) .  
40 18 052 12/1990 (DE) .

(73) Assignee: **Nintendo Co., Ltd., Kyoto (JP)**

(List continued on next page.)

(\*) Notice: This patent issued on a continued prosecution application filed under 37 CFR 1.53(d), and is subject to the twenty year patent term provisions of 35 U.S.C. 154(a)(2).

#### OTHER PUBLICATIONS

*3D Ballz Instruction Booklet*, Accolade, San Jose, California, #3050-00231 Rev. A.

(List continued on next page.)

Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

*Primary Examiner*—Cliff N. Vo

(74) *Attorney, Agent, or Firm*—Nixon & Vanderhye P.C.

#### (57) ABSTRACT

Three-dimensional image display game system and method for use with a display for displaying an object in a three-dimensional space, including an operation controlling device including an operating member having a base end rotatably supported and a free end operable by an operator. The operation controlling device includes an inclination amount data output detector which detects an inclination amount of the operating member to output inclination amount data. The system further includes direction determining circuitry operable to determine a direction that corresponds to an inclination direction of the operating member based on the inclination amount data, and moving object direction determining circuitry which determines a moving direction of the object in three-dimensional space based upon the direction determined by the direction determining circuitry and a point of view angle at which the object is being viewed by the operator in three-dimensional space. A direction in which the operating member must be moved to cause forward movement of the object is offset from a forward direction of the operation controlling device by an angle corresponding to the point of view angle.

(21) Appl. No.: **08/836,731**

(22) PCT Filed: **Sep. 20, 1996**

(86) PCT No.: **PCT/JP96/02726**

§ 371 Date: **May 22, 1997**

§ 102(e) Date: **May 22, 1997**

(87) PCT Pub. No.: **WO97/14088**

PCT Pub. Date: **Apr. 17, 1997**

#### (30) Foreign Application Priority Data

Oct. 9, 1995 (JP) ..... 7-288006

(51) Int. Cl.<sup>7</sup> ..... **G06T 15/20**

(52) U.S. Cl. .... **345/427; 345/419; 345/474**

(58) Field of Search ..... **345/419, 145,  
345/160, 161, 953, 427, 474**

#### (56) References Cited

##### U.S. PATENT DOCUMENTS

D. 316,879 5/1991 Shulman et al. .... D14/117.7

**34 Claims, 14 Drawing Sheets**

